

PATENT COOPERATION TREATY


PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 15 MAY 2006
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Applicant's or agent's file reference P 001 798 PC		FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/EP2004/001539		International filing date (day/month/year) 18.02.2004	Priority date (day/month/year) 18.02.2004	
International Patent Classification (IPC) or national classification and IPC INV. H04Q7/26 H04Q7/38				
Applicant TELEFONAKTIEBOLAGET L. M. ERICSSON et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 3 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 02.12.2005		Date of completion of this report 11.05.2006		
Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840		Authorized officer LOPEZ PEREZ M C Telephone No. +49 30 25901-496		



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Box No. 1 Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-7, 9-14, 16-23	as originally filed
8, 15	received on 02.12.2005 with letter of 02.12.2005

Claims, Numbers

2(part), 3-16	as originally filed
1, 2(part)	received on 02.12.2005 with letter of 02.12.2005

Drawings, Sheets

1/5-5/5	as originally filed
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- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	5,6,9,10
	No: Claims	1-4,7,8,11-16
Inventive step (IS)	Yes: Claims	
	No: Claims	1-16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1 Reference is made to the following documents (D1-D5):

- D1: WO 03/101128 A (MOTOROLA LTD ; BALLA CHANTAL (IL); BAR-ON DAVID (IL); KRAMER DAVID (IL) 4 December 2003 (2003-12-04)
- D2: GB-A-2 313 257 (MOTOROLA LTD) 19 November 1997 (1997-11-19)
- D3: EP-A-1 441 556 (MATSUSHITA ELECTRIC IND CO LTD) 28 July 2004 (2004-07-28)
- D4: US-B-6 487 4101 (KONTIO ARI ET AL) 26 November 2002 (2002-11-26)
- D5: EP-A-1 207 708 (ERICSSON TELEFON AB L M) 22 May 2002 (2002-05-22)

2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-4,7,8,11-16 is not new in the sense of Article 33(2) PCT.

2.1 Using the wording of claim 1, document D1 discloses (the references in parentheses applying to this document):

"A mobile telecommunications network (100) including a plurality of base stations systems (174) adapted to communicate with a mobile terminal (172) over a predetermined licensed radio interface and switching centers (142,144,176,178) connected to a plurality of said base stations systems (174), wherein each switching center (142,144,176,178) and the base station systems connected thereto (174) share a location area identity (page 21, lines 1-12), said base station systems (174) being adapted to communicate information indicative of said location area identity to a mobile terminal (page 7, lines 1-21),

whereby said network further includes at least two unlicensed radio-access networks (page 24, line 1 - page 25, line 17), each comprising an access point controller (136,138,140) connected to one of said switching centers (142,144), multiple access points (122,124,126,128,130,132) adapted to communicate with said mobile terminal (116) via an unlicensed radio interface (118,119,129; page 24, line 1 - page 25, line 17), a fixed broadband network (168) connecting said plurality of access points (122,124,126,128,130,132) with said access network controllers

(136,138,140) and a lookup table (page 17, line 16 - page 18, line 25) mapping a location area identity with address information for an access point controller (136,138,140) on said fixed broadband network (168), wherein each said access point is adapted to receive from said mobile station information indicative of a last received location area, to receive from said mobile station information indicative of a last received location area, to receive from said lookup table address information for an access point controller (136,138,140) mapped to said location identity and to establish a connection with said addressed access point controller (136,138, 140) via said fixed broadband network (page 21, line 1 - page 23, line 7)."

The subject-matter of claim 1 is therefore not new (Article 33(2) PCT).

- 2.2 Besides of informing a mobile station of other available access points at a specific location, document D1 also discloses the connection of an access point with the correct access point controller, given a specific location of the access point **derived from location area information received from a mobile station** (see page 21, line 1 - page 23, line 7).
- 2.3 Independent apparatus claim 8 and independent method claims 13 and 16 have the same technical features of independent claim 1. Their subject-matter is, for the reasons explained above, not new (Article 33(2) PCT).
- 2.4 The additional features of dependent claims 2-7, 9-12 and 14-15 are also known from D1. In particular:
- claims 2,3,14: page 21, lines 1-18;
 - claim 4: page 21, lines 19-24;
 - claims 7,11: page 23, lines 16-31; page 26, lines 25-30.
 - claims 12,15: the access point is connected to a default access point controller: implicitly disclosed in document D1 (page 16, line 14 - page 18, line 11).
- The subject-matter of claims 2-4,7,11,12,14,15 is therefore not new (Article 33(2) PCT).
- 3 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 5,6,9,10 does not involve an inventive step in the sense of Article 33(3) PCT. In particular, these claims refer to the place of storage of the

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lookup table: the skilled person would regard them as obvious design options.
The subject-matter of claims 5,6,9,10 is therefore not inventive (Article 33(3) PCT).

nodes.

The access portion essentially consists of base station subsystems BSS 10, one of which is illustrated in Fig. 1, which communicate via defined fixed standard A and Gb interfaces with MSCs 202 and SGSNs 203, respectively in the core network portion 20. Each base station subsystem BSS 10 includes a base station controller BSC 103 which communicates with one or more base transceiver stations BTS 101 via the defined A_{bis} air interface 102. The base transceiver stations 101 communicate with mobile terminals MT 1 over the GSM standard U_m radio air interface. It will be understood that while the BTS 101 and BSC 103 are depicted as forming a single entity in the BSS 10, the BSC 103 is often separate from the BTSs 101 and may even be located at the mobile services switching centre MSC 202. The physical division depicted in Fig. 1 serves to distinguish between the parts of the network making up the access network portion 10 and those that form the core network portion 20.

In addition to the standard access network portion provided by the BSS's 10 the network depicted in Fig. 1 further includes a modified access network portion 30 shown in the lower half of the figure. Hereinafter this will be described as an unlicensed-radio access network portion 30.

The components making up this unlicensed-radio access network portion 30 also enable the mobile terminal 1 to access the GSM core network portion, and through this, other communication networks via an unlicensed-radio interface X, represented in Fig. 1 by the bi-directional arrow 11. By unlicensed-radio is meant any radio protocol that does not require the operator running the mobile network to have obtained a license from the appropriate regulatory body. In general, such unlicensed-radio technologies must be low power and thus of limited range compared to licensed mobile radio services. This means that the battery lifetime of mobile terminals will be greater. Moreover, because the

home base station controller HBSC3 located in location area LA3 defines further location area LA71 and the home base station controller HBSC4 located in location area LA4 defines further location area LA72. Furthermore, all home base stations HBS 301 connected to the home base station controllers HBSC1-HBSC4 have been assigned specifically to this home base station controller as a consequence of their current location. This is achieved using an access point distribution function. In its simplest form the access point distribution function 40 is a lookup table that may be accessed by a home base station HBS 103 or alternatively by home base station controller HBSC 303 to obtain the IP address data of the home base station controller HBSC 303 a home base station should be connected to. If the access point distribution function is to be accessed by the home base stations HBS 301, it should be provided on the fixed broadband network 302 and be accessible by means of a suitable enquiry by the home base station HBS 301 when the latter connects to the broadband network.

The access network distribution mechanism is illustrated in Fig. 4. Fig. 4 shows two location areas, LA1 and LA2. A first home base station controller HBSC1 3031 is connected in the first of these location areas LA1 and a second home base station controller HBSC2 303 is connected in the second location area LA2. A mobile station MS 10 is shown in the vicinity of a home base station HBS 301 that has not yet connected to a home base station controller HBSC 303. The numbered arrows shown in Fig. 4 illustrate the various messages exchanged between the various elements in order for the home base stations HBS 301 to be assigned to a specific home base station controller HBSC 303, or more generally for unlicensed-radio access points to be distributed to a specific unlicensed radio access network. The signalling sequence suggested by the arrows in Fig. 4 is illustrated in Fig. 5.

In Fig. 5 the various elements involved in the signalling are shown at the top

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Claims:

- 5 1. A mobile telecommunications network including a plurality of base station systems (10) adapted to communicate with a mobile terminal (1) over a predetermined licensed radio interface and switching centers (202) connected to a plurality of said base station systems (10), wherein each switching center (202) and the base station systems (10) connected thereto share a location area identity, said base station systems (10) being adapted to communicate information indicative of said location area identity to a mobile terminal (1),
- 10 characterised in that said network further includes at least two unlicensed-radio access networks, each comprising an access point controller (303) connected to one of said switching centers (202), multiple access points (301) adapted to communicate with said mobile terminal (1) via an unlicensed-radio interface, a fixed broadband network (302) connecting said plurality of access points (301) with said access network controllers (303) and a lookup table mapping a location area identity with address
- 15 information for an access point controller (303) on said fixed broadband network (302), wherein each said access point is adapted to receive from said mobile station information indicative of a last received location area, to receive from said lookup table address information for an access point controller (303) mapped to said location identity and to establish a
- 20 connection with said addressed access point controller (303) via said fixed broadband network.
- 25 2. A network as claimed in claim 1, characterised in that said lookup table (40) is accessible via said fixed broadband network (302) and is adapted to